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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/447,077	11/22/1999	DANA C. BOOKBINDER	16-6-1	3342

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CORNING INCORPORATED
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EXAMINER

MARKHAM, WESLEY D

ART UNIT	PAPER NUMBER
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1762

7

DATE MAILED: 01/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

T.D-7

Office Action Summary	Application No. 09/447,077	Applicant(s) BOOKBINDER ET AL.	
	Examiner Wesley D Markham	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
4a) Of the above claim(s) 34-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2 and 3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1 – 49 are currently pending in U.S. Application Serial # 09/447,077, and an Office Action on the merits follows.

Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1 – 33, drawn to a method of protecting a silica-containing article used in the manufacture of an optical fiber, in Paper No. 6 is acknowledged. As such, the claims of Group II (i.e., Claims 34 – 49) are withdrawn from further consideration by the examiner as being drawn to a non-elected invention.

Drawings

2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Specification

3. The current title of the invention (i.e., "METHODS FOR PROTECTING SILICA-CONTAINING ARTICLE AND INHIBITING BREAKS DURING DRAWING OF OPTICAL FIBER, AND SILICA-CONTAINING ARTICLE PROTECTED AGAINST BREAK-INDUCING PARTICULATES") is too long (i.e., contains too many characters for printing purposes). A shorter, more concise, title is suggested.

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4. The examiner would like to note that, in the examination of this application, the term, "a silica-containing article used in the manufacture of an optical fiber" (present, for example, in independent Claim 1), has been interpreted to exclude the optical fiber itself after it has been drawn from a given preform.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 – 10, 12 – 19, 22 – 27, and 29 – 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuji et al. (JP 02-258643 A).
7. With regards to independent Claim 1, Tsuji et al. teach a method of protecting a silica-containing article used in the manufacture of an optical fiber, the method comprising the steps of providing a silica (i.e., quartz) containing article used in the manufacture of an optical fiber (page 4, paragraph 4, and page 5), and applying a protective layer to the silica-containing article (page 4, paragraph 2). Regarding Claim 2, Tsuji et al. also teach that the protective layer is applied to a consolidated glass surface. Specifically, Tsuji et al. teach that the protective layer is applied to an optical fiber preform after fire polishing the preform (page 5, paragraph 4). This quartz (i.e., glass) preform would have inherently been consolidated by at least the

fire polishing process, if not prior to the fire polishing process. Regarding Claim 18, Tsuji et al. do not explicitly teach that the silica-containing article is a fiber preform from which an optical fiber can be drawn, and the protective layer is applied directly onto the fiber preform. Specifically, the applicant states that, with regards to the instant application, "the term fiber preform shall refer to an article from which a fiber can be drawn without having to add more silica-containing glass" (page 2, lines 12 – 13 of the applicant's specification). In Tsuji et al., an additional clad portion (i.e., a jacket) is added to the preform after the protective layer coating process (See page 2 and Figure 2). However, Tsuji et al. teach that the preform of their invention which is coated with the protective layer comprises both a core and a cladding layer (page 4, paragraph 6, and Figure 1). This preform, although envisioned by Tsuji et al. to have a further jacket layer added to it, is capable of being drawn directly into an optical fiber directly without the addition of a jacket layer (see, for example, Yokota et al. (USPN 4,793,842), Col.5, lines 38 – 45, and/or Matsuda et al. (USPN 5,093,880), Col.3, lines 51 – 58, which teach that an additional jacket layer (i.e., the additional clad portion of Tsuji et al.) is optional and only used in some cases). Therefore, the preform of Tsuji et al. to which the protective layer is applied directly thereon can inherently be drawn into an optical fiber, as required by applicant's Claim 18.

8. In addition, Tsuji et al. also teach all the limitations of Claims 3 – 10, 12 – 17, 19, 22 – 27, and 29 – 31 as set forth above in paragraph 7 and below, including a method wherein / further comprising:

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- Claim 3 – The protective layer ablates during subsequent processing of the silica-containing article. Specifically, Tsuji et al. teach that the protective layer is removed (i.e., is ablated) in a subsequent step (page 6, Implementation Example).
- Claim 4 – The protective layer leaves essentially no detrimental inorganic residue after ablating. Specifically, Tsuji et al. teach that no residue at all is left after the protective layer is removed (page 6, Implementation Example).
- Claims 5 and 22 – The protective layer inhibits bonding of particulates to the silica-containing article (page 5, paragraph 5).
- Claims 6 and 23 – The protective layer inhibits bonding by occupying active sites on the silica-containing article such that the particulates cannot bond to those active sites. While not explicitly taught by Tsuji et al., the protective layer is provided on and tightly adhered to the preform (page 5, paragraph 4) and therefore would have inherently “occupied active sites” on the preform and prevented particulates from bonding to the active sites.
- Claims 7 and 24 – The active sites include groups that will form a SiMO_x compound, where M is a metal. While not explicitly taught by Tsuji et al., examples of groups that will form a SiMO_x compound include OH and SiOH groups (see page 5, lines 29 – 30, of the applicant’s specification). The quartz (i.e., silica) preform of Tsuji et al. would have inherently included such groups on its surface due to contact with water vapor present in the ambient/air.

- Claims 8 – 10, 12, 25 – 27, and 29 – The protective layer includes carbon, preferably an organic material selected from the group of compounds listed in Claims 10, 12, 27, and 29. Specifically, Tsuji et al. teach, for example, the use of a polyacryl system (i.e., an organic material and an acrylate polymer) as the protective layer. Please note that the applicant has indicated that acrylate polymers are UV-curable (page 7, lines 24 – 25 of the applicant's specification).
- Claims 13 and 30 – Removing particulates from the protective layer. While not explicitly taught by Tsuji et al., at least some of the particulates present on the protective layer would have inherently been removed due to agitation/movement during the further processing steps (i.e., during the peeling of the protective resin layer, etc.).
- Claims 14 – 15 and 31 – Removing the protective layer from the silica-containing article during further processing, preferably prior to the fiber drawing step (pages 6 – 7, Effect of the Invention).
- Claim 16 – The silica-containing article includes one of a core cane or a core blank used in an outside vapor deposition process (page 2, Conventional Technology, and page 5, paragraph 4).
- Claim 17 – The silica-containing article includes a glass tube used in an inside vapor deposition process (page 2, Conventional Technology, and page 5, paragraph 4).

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- Claim 19 – Drawing an optical fiber from the fiber preform (Figure 2 and page 7, paragraph 1).
9. Claims 1 – 2, 5 – 7, 18 – 19, and 22 – 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Elion (USPN 4,473,599).
10. Regarding independent Claim 1, Elion teaches a method of protecting a silica-containing article used in the manufacture of an optical fiber, the method comprising the steps of providing a silica (i.e., quartz) containing article used in the manufacture of an optical fiber (Col.2, lines 12 – 16), and applying a protective layer to the silica-containing article (Col.2, lines 17 – 25).
11. Elion also teaches all the limitations of Claims 2, 5 – 7, 18 – 19, and 22 – 24 as set forth above in paragraph 10 and below, including a method wherein / further comprising:
- Claim 2 – The protective layer is applied to a consolidated glass surface (Col.3, lines 19 – 32).
 - Claims 5 and 22 – The protective layer inhibits bonding of particulates to the silica-containing article. Although not explicitly taught by Elion, the protective layer would have inherently have performed this function in addition to protecting the preform from the environment in general, as taught by Elion (Abstract).
 - Claims 6 and 23 – The protective layer inhibits bonding by occupying active sites on the silica-containing article such that the particulates cannot bond to

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those active sites. While not explicitly taught by Elion, the protective layer does protect the fiber from the environment in general (Abstract) and therefore would have inherently "occupied active sites" on the preform and prevented particulates from bonding to the active sites.

- Claims 7 and 24 – The active sites include groups that will form a SiMO_x compound, where M is a metal. While not explicitly taught by Elion, examples of groups that will form a SiMO_x compound include OH and SiOH groups (see page 5, lines 29 – 30, of the applicant's specification). The quartz (i.e., silica) preform of Elion would have inherently included such groups on its surface due to contact with water vapor present in the ambient/air.
- Claim 18 – The silica-containing article is a fiber preform from which an optical fiber can be drawn and the protective layer is applied directly onto the fiber preform (Col.3, lines 26 – 56).
- Claim 19 – Drawing an optical fiber from the fiber preform (Col.4, lines 27 – 36).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
14. Claims 32 – 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji et al. (JP 02-258643 A) as applied to Claims 1, 2, and 18 above, and further in view of France (USPN 4,973,345) or Grabmaier (German Patent No. 28 53 873 A1).
15. Tsuji et al. teach all the limitations of Claims 32 – 33 as set forth in paragraphs 7 – 8 above, except a method which comprises, in addition to forming the protective coating layer on the fiber preform itself, forming the fiber preform either (1) by adding additional soot materials by an outside vapor deposition process onto a core cane and a core blank, or (2) by an inside vapor deposition process from a silica-containing tube, applying the protective coating to these intermediate products, and removing particulates from the protective layer on each of these intermediate products. However, Tsuji et al. do teach forming the aforementioned intermediate products by the inside vapor deposition process and/or the outside

vapor deposition process and applying the protective coating to these intermediate products (page 2, Conventional Technology, and page 5, paragraph 4). Further, at least some of the particulates adhered to the protective resin coating would have inherently been removed due to agitation/movement during the further processing steps (i.e., during the peeling of the protective resin layer, etc.). Tsuji et al. do not teach performing these steps in conjunction with / in addition to coating the finished optical fiber preform (i.e., the preform after the additional clad portion attachment process) with the protective resin coating. However, Tsuji et al. do teach that their method of coating the preform is effective in protecting the preform from dust and dirt, which is beneficial since dust and dirt cause a number of problems in subsequent processes such as fiber drawing (pages 4 and 7). Both France and Grabmaier teach that it is desirable to prevent contamination of the optical fiber preform in the handling / process steps up to and immediately prior to drawing the optical fiber from the finished preform (Col.2, lines 39 – 48 of France, and page 2, paragraphs 5 – 6 of Grabmaier). Therefore, it would have been obvious to one of ordinary skill in the art to utilize the protective coating process of Tsuji et al. both (1) prior to the additional clad portion attachment process (i.e., on the intermediate products / unfinished preform) as taught by Tsuji et al. and (2) after the clad attachment process but prior to the fiber drawing process (i.e., on the finished preform) with the reasonable expectation of successfully preventing contamination of the optical fiber preform throughout the entire preform manufacturing / handling process (which is taught to be desirable by both France and Grabmaier) and

eliminating problems caused by dust and dirt in the fiber drawing process, such as breakage of the fiber or drastic lowering in strength of the fiber, as taught by Tsuji et al.

Double Patenting

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969). A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).
17. Claims 1 – 16 and 18 – 32 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 – 28 of copending Application No. 09/569,562. Although the conflicting claims

are not identical, they are not patentably distinct from each other because Claims 1 – 28 of copending Application No. 09/569,562 teach all the limitations of Claims 1 – 16 and 18 – 32 of the instant application in addition to teaching other process steps, such as shipping the coated silica-containing article from one factory to another for further processing. Since Claims 1 – 28 of copending Application No. 09/569,562 teach all the limitations of Claims 1 – 16 and 18 – 32 of the instant application, one of ordinary skill in the art would have been motivated to perform the claimed process of the instant application. With regards to Claims 11 and 28 of the instant application, please note that the silane compounds taught by Claim 16 of Application No. 09/569,562 inherently form a self-assembled monolayer when applied to a silica-containing article.

18. Claims 17 and 33 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 – 28 of copending Application No. 09/569,562 (as set forth in paragraph 17 above) in view of Tsuji et al. (JP 02-258643 A).
19. Specifically, Claims 1 – 28 of copending Application No. 09/569,562 teach all the limitations of Claims 17 and 33 of the instant application, except a method in which the silica-containing article coated with the protective layer is a glass tube used in an inside vapor deposition process. However, Claims 1 – 28 of copending Application No. 09/569,562 do teach coating an optical fiber preform in general for protection. Tsuji et al. teach coating a glass tube used in an inside vapor deposition process with a protective coating (page 2, Conventional Technology, and page 5).

Tsuji et al. also teach that the protective coating protects the preform from dust and dirt, which cause problems in later optical fiber processing steps. Therefore, it would have been obvious to one of ordinary skill in the art to use the protective layer of Claims 1 – 28 of copending Application No. 09/569,562 to protect a glass tube used in an inside vapor deposition process with the reasonable expectation of protecting the tube from dust and dirt, as taught by Tsuji et al.

20. These are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Draper (USPN 6,189,341 B1) teaches a method of coating an optical fiber preform with a particle-digesting material. Sumitomo Electric Ind Co (JP 04-065327 A) teaches a method of coating an optical fiber preform with a gel film which is later glassified.
22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.
23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are

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(703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

24. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

WDM

WDM

January 10, 2002

Wesley D Markham
Examiner
Art Unit 1762

B. Chen

**BRET CHEN
PRIMARY EXAMINER**